

QT-12ZS

# SHARP SERVICE MANUAL

ATSM183002RCS

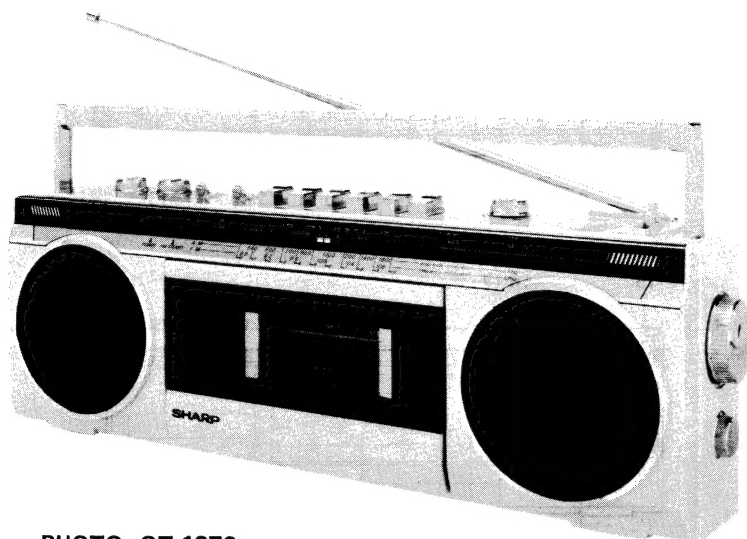


PHOTO: QT-12ZS

QT-12ZS  
QT-12ZR  
QT-12ZY  
QT-12ZB

In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

## SPECIFICATIONS

### GENERAL

Power source:	AC 110V ~ 127V and 220V ~ 240V, 50/60Hz DC 9V (UM/SUM-2, R14, HP-11 or C type x 6)
Speakers:	9 cm (3-1/2") x 2
Output power:	PMPO; 5W + 5W (AC operation) MPO; 3.6W + 3.6W (AC operation) RMS; 2.3W + 2.3W (DC operation, 10% distortion)
Semiconductors:	5 ICs 5 transistors 14 diodes 2 LEDs
Dimensions:	Width; 404 mm (16") Height; 136.5 mm (5-3/8") Depth; 79.5 mm (3-1/8")
Weight:	2.0 kg (4.5 lbs.) without batteries

### TAPE RECORDER

Tape:	Compact cassette tape
Frequency response:	50Hz ~ 10,000Hz
Signal/noise ratio:	45 dB
Wow and flutter:	0.18% (WRMS)
Input impedance:	External mic; 600 ohms
Output impedance:	Headphones; 8 ~ 32 ohms

### RADIO

Frequency range:	FM; 87.6 MHz ~ 108 MHz AM; 525 kHz ~ 1605 kHz SW <sub>1</sub> ; 2.3 MHz ~ 7.3 MHz SW <sub>2</sub> ; 7.3 MHz ~ 22 MHz
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Specifications for this model are subject to change without prior notice.

SHARP CORPORATION OSAKA, JAPAN

FOR A COMPLETE DESCRIPTION OF THE OPERATION OF THIS UNIT,  
PLEASE REFER TO THE OPERATION MANUAL.

## NAMES OF PARTS

1. FM/SW Telescopic Rod Antenna
2. Volume Control
3. Balance Control
4. Mode Selector
5. Function Selector
6. Pause Button
7. Stop/Eject Button
8. Fast-forward Button
9. Rewind Button
10. Playback Button
11. Record Button
12. Tone Control
13. Band Selector
14. Tuning Control
15. Built-in Microphone (L-ch)
16. Power Indicator
17. FM Stereo Indicator
18. Built-in Microphone (R-ch)
19. Speaker (L-ch)
20. Digital Tape Counter
21. Tape Counter Reset Button
22. Cassette Holder
23. Speaker (R-ch)
24. Fine Tuning Control
25. External Microphone Jacks
26. Battery Compartment Lid
27. Beat Cancel Switch
28. Headphones Jack
29. AC Power Supply Socket

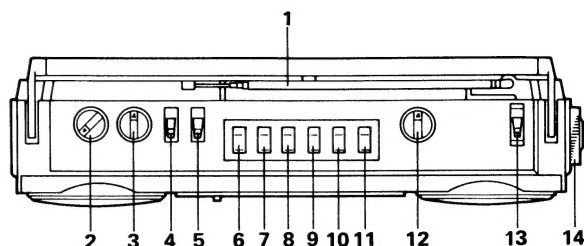


Figure 2-1

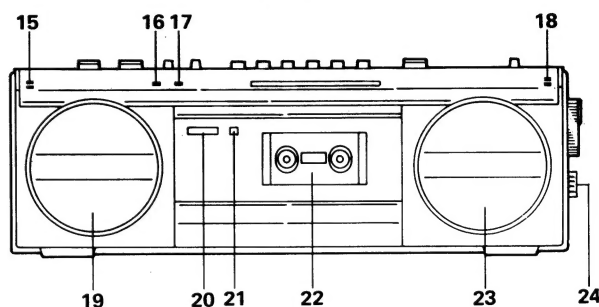


Figure 2-2

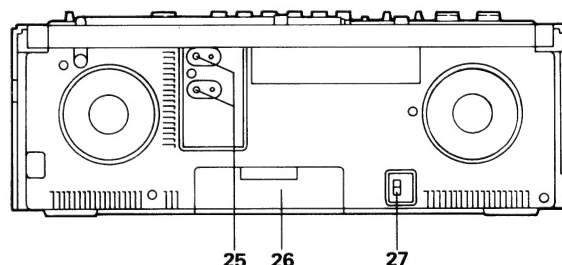


Figure 2-3

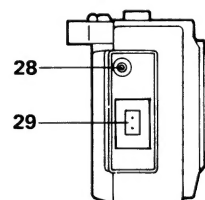


Figure 2-4

## VOLTAGE SELECTION

Before operating the unit on mains, check the preset voltage. If the voltage is different from your local voltage, adjust the voltage as follows: Slide the AC power supply socket cover by a little loosening one screw to the visible indication of the side of your local voltage. See Figure 2-5.

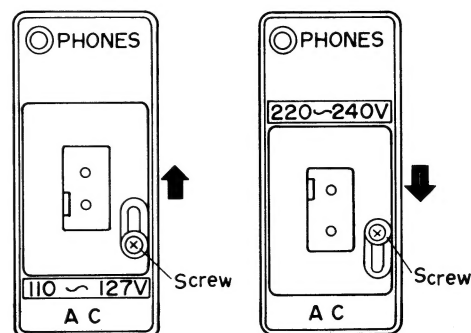


Figure 2-5

## DISASSEMBLY

### Caution:

Prior to the disassembly, be sure to remove the AC power supply cord, cassette tape and batteries from the unit.

### A REMOVAL OF FRONT CABINET

(Refer to Figures 3-1 and 3-2.)

1. Set the mode selector switch at "Mono", function selector switch at "Tape" and band selector switch at "FM" position respectively.
2. Pull out the tuning knob, fine tuning knob, tone control knob, balance control knob and volume control knob.
3. Remove six screws from the front cabinet.
4. Raise up the handle as shown in Figure 3-2, and pull out the front cabinet by holding its both sides. At the time, disconnect the speaker socket from the audio P.W.B.

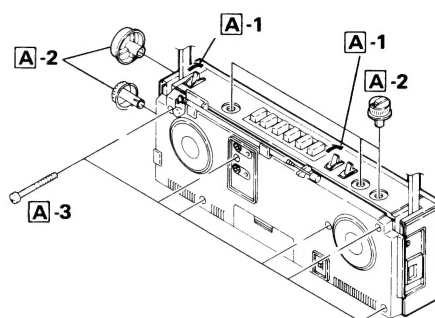


Figure 3-1

### B REMOVAL OF MECHANISM BLOCK

(Refer to Figure 3-3.)

1. Remove the tape counter drive belt and mechanism leads.
2. Remove three screws from the mechanism block.
3. Disconnect the socket from the audio P.W.B. and take out the mechanism block. Then disconnect the socket from the record/playback head.

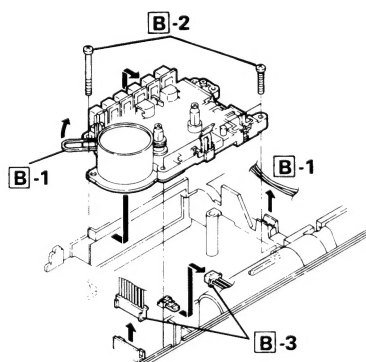


Figure 3-3

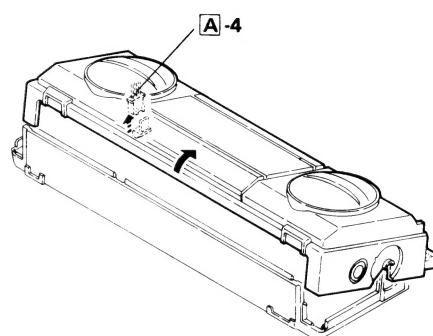


Figure 3-2

### C REMOVAL OF TUNER FRAME

(Refer to Figure 3-4.)

1. Detach the LED P.W.B. from the tuner frame and disconnect the socket from the audio P.W.B.
2. Remove two screws from the tuner P.W.B. Then the tuner frame can be detached together with the tuner P.W.B.

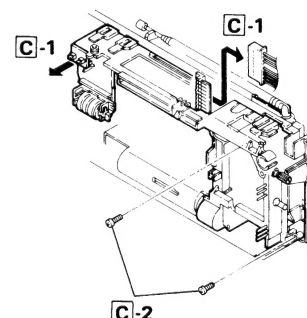


Figure 3-4

### D REMOVAL OF AUDIO P.W.B.

(Refer to Figure 3-5.)

1. Disconnect the socket from the audio P.W.B. and remove the jacks P.W.B. and microphone holder from the back cabinet.
2. Remove two screws from the power transformer, one screw from the beat cancel switch and three screws from the audio P.W.B.

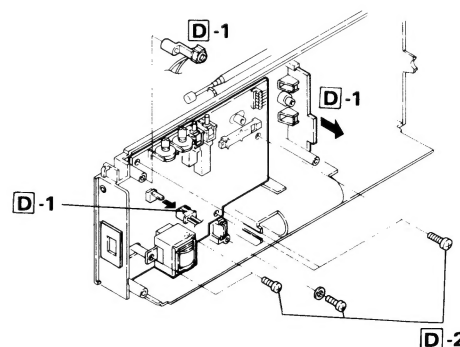


Figure 3-5

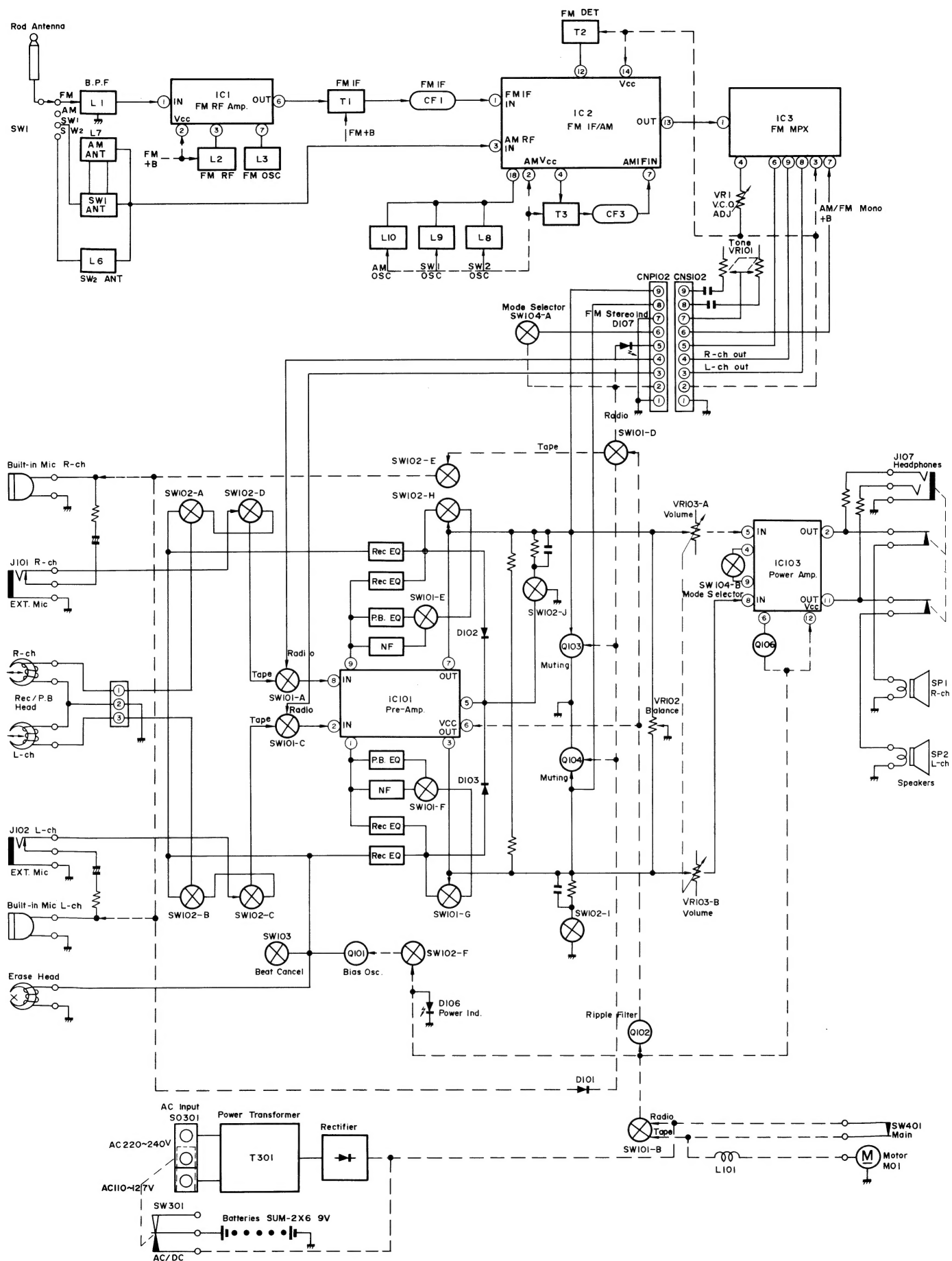


Figure 4 BLOCK DIAGRAM

## MECHANICAL ADJUSTMENT

### PINCH ROLLER PRESSURE CHECK

- 1) Place the unit in play mode.
- 2) Push the pinch roller, at the point (A) shown in Figure 5-1, by using a tension gauge (500 gr.) so that it will come off the capstan. Then, slowly release the tension until the pinch roller hits the capstan again (i.e., the pinch roller is about to rotate again). Check, then, the tension gauge is reading 270 gr. to 330 gr.
- 3) If the reading is outside the range of 270 gr. to 330 gr., bend the pinch roller spring or replace.

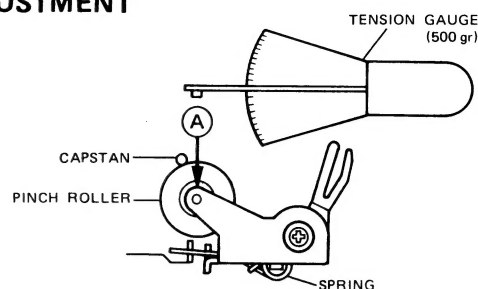


Figure 5-1

### TORQUE CHECK AT PLAY, FAST FORWARD AND REWIND MODES

Put a torque meter cassette in the cassette compartment of the unit, and see that the measured torque in each mode is normal as Table 5-1.

Mode	Torque meter cassette	Measured torque
Playback	TW-2111	40 ~ 60 g-cm
Fast forward	TW-2231	85 ~ 130 g-cm
Rewind	TW-2231	85 ~ 130 g-cm

Table 5-1

### RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

- 1) Make a connection of instruments as shown in Figure 5-2.
- 2) Set the mode selector switch at "tape" position.
- 3) Put a test tape (TEAC, MTT-114, 10 kHz 250 pWb/mm, -10 dB prerecorded) into the unit and play it.
- 4) Adjust the head azimuth adjusting screw so that the electronic voltmeter reading is maximal.

#### Note:

If a dual-trace oscilloscope is available, perform the adjustment so that the reading of the oscilloscope is maximal and with the least phase/output difference between channels. After the work, check that the head azimuth adjusting screw has been secured completely.

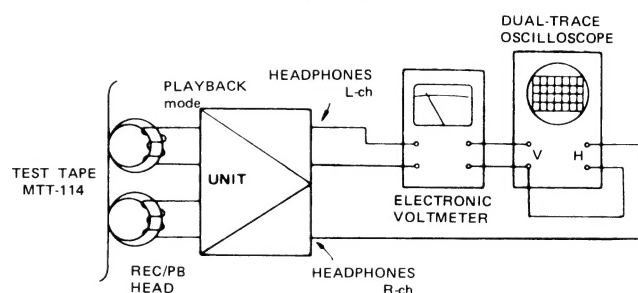


Figure 5-2

### TAPE SPEED ADJUSTMENT

- 1) Make a connection of instruments as shown in Figure 5-3.
- 2) Play a test tape (TEAC, MTT-111, 3 kHz prerecorded).
- 3) Adjust the semi-variable resistor in the motor so that the frequency is 2965 ~ 3015 Hz on frequency counter.

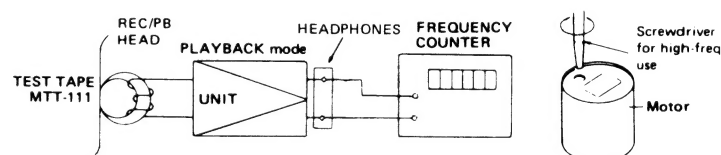


Figure 5-3

## ELECTRICAL ADJUSTMENT

### BIAS OSCILLATOR FREQUENCY CHECK

- 1) Make a connection of instruments as shown in Figure 5-4.
- 2) Set the function selector switch at "tape", and the beat cancel switch at "A" position.
- 3) Place the unit in record mode, and see that the frequency counter is reading  $60 \pm 3$  kHz. Change the beat cancel switch from "A" position to "B" position, "B" position to "C" position. Then see that the frequency counter's reading is changed as shown in Table 5-2.

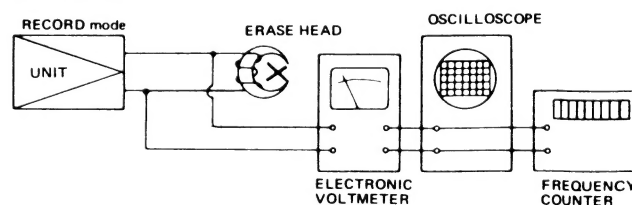


Figure 5-4

Position	A	B	C
Frequency counter's reading	$60 \pm 3$ kHz	$61 \pm 3$ kHz	$58.5 \pm 3$ kHz

Table 5-2

### PLAYBACK AMPLIFIER SENSITIVITY CHECK

- 1) Make a connection of instruments as shown in Figure 5-5.
- 2) Set the function selector switch at "tape", the volume control knob at "max", and the tone control knob at "high" position.
- 3) Playback a test tape (TEAC, MTT-118, 1 kHz, 250 pWb/mm, -10 dB prerecorded).
- 4) See that the electronic voltmeter is reading about 1.2V.

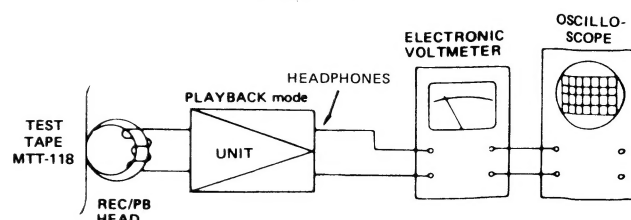


Figure 5-5

## GENERAL ADJUSTMENT INSTRUCTION

Should it become necessary at any time to check the adjustment of this receiver, proceed as follows;

1. Set the volume control (VR103) to maximum.
2. Attenuate the signals from the generator enough to swing the most sensitive range of the output meter.
3. Use a non-metallic adjustment tool.
4. Repeat adjustments to insure good results.
5. Set the function selector switch (SW101) to "radio" position.

### AM IF/RF ADJUSTMENT

- Set the signal generator to produce a signal of 400Hz, 30%, AM modulated.
- For adjustments in steps 4 and 9, see **Note A**.

STEP	BAND	TEST STAGE	FRE- QUEN- CY	DIAL SET- TING	ADJUST- MENT	REMARKS
IF (Connect instruments as shown in Fig. 6-1.)						
1	AM	IF	455kHz	High end of dial	T3	Adjust for best "IF" curve
RF (Connect instruments as shown in Fig. 6-2.)						
2	AM	Band cover- age	510kHz	Low end of dial	L10	Adjust for maximum output
3	AM		1650 kHz	High end of dial	TC8	
4	AM	Track- ing	600kHz	600 kHz	L7	
5	AM		1400 kHz	1400 kHz	TC5	
6	Repeat steps 2,3,4 and 5 until no further improvement can be made.					
RF (Connect instruments as shown in Fig. 6-3.)						
7	SW <sub>1</sub>	Band cover- age	2.25 MHz	Low end of dial	L9	Adjust for maximum output
8	SW <sub>1</sub>		7.4MHz	High end of dial	TC7	
9	SW <sub>1</sub>	Track- ing	2.6MHz	2.6MHz	L7	
10	SW <sub>1</sub>		6.0MHz	6.0 MHz	TC4	
11	Repeat steps 7,8,9 and 10 until no further improvement can be made.					
12	SW <sub>2</sub>	Band cover- age	7.2MHz	Low end of dial	L8	Adjust for maximum output
13	SW <sub>2</sub>		22.5 MHz	High end of dial	TC6	
14	SW <sub>2</sub>	Track- ing	8.5MHz	8.5 MHz	L6	
15	SW <sub>2</sub>		19MHz	19 MHz	TC3	
16	Repeat steps 12, 13, 14 and 15 until no further improvement can be made.					

### Note A

Check the adjustment of the receiver antenna coil by bringing a piece of ferrite (such as a coil slug) near the antenna loop stick, then a piece of brass. If ferrite increases output, loop requires more inductance. If brass increases output, loop requires less inductance. Change loop inductance by sliding the bobbin toward the center of ferrite core to increase inductance, or away to decrease inductance.

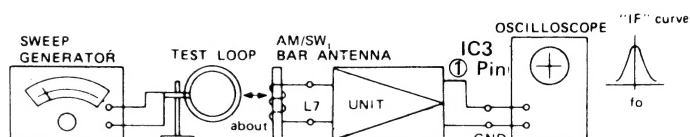


Figure 6-1

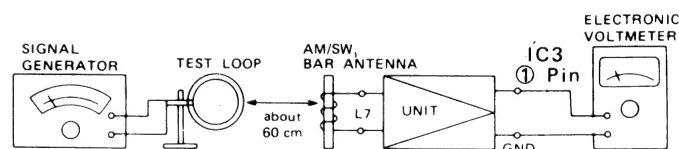


Figure 6-2

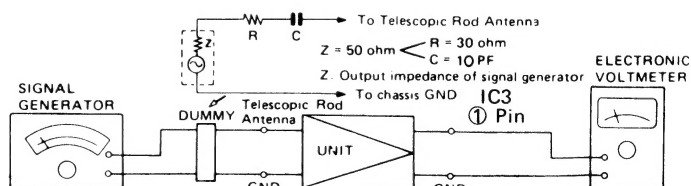


Figure 6-3

# FM IF/RF ADJUSTMENT

- Set the signal generator to produce a signal of 400Hz, 30%, FM modulated.

STEP	BAND	TEST STA- GE	FRE- QUEN- CY	DIAL SET- TING	AD- JUST- MENT	REMARKS
IF (Connect instruments as shown in Fig. 7-1.)						
1	FM	IF	10.7 MHz	High end of dial	T1 T2	Adjust for best "S" curve
RF (Connect instruments as shown in Fig. 7-2.)						
2	FM	Band cover- age	87.1 MHz	Low end of dial	L3	Adjust for maximum output
3	FM		109 MHz	High end of dial	TC2	
4	FM	Track- ing	88 MHz	88 MHz	L2	
5	FM		108 MHz	108 MHz	TC1	
6	Repeat steps 2,3,4 and 5 until no further improvement can be made.					

# FM STEREO ADJUSTMENT

- Set the band selector switch (SW1) to "FM" position and mode selector switch (SW104) to "stereo" position.
- Before this adjustment, connect the anode side of Stereo indicator (D107) to GND.
- Connect instruments as shown in Fig. 7-3 and Fig. 7-4.

FREQUENCY	DIAL POINTER	ADJUSTMENT	REMARKS
98MHz (54dB) unmodulated	98MHz	VR1	Adjust for $38 \pm 0.15\text{kHz}$

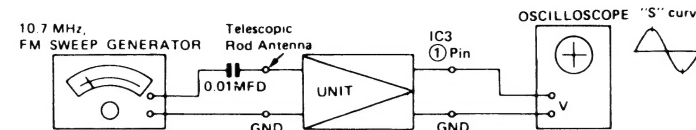


Figure 7-1

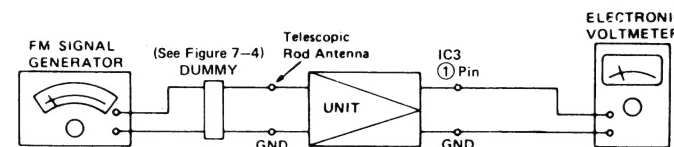


Figure 7-2

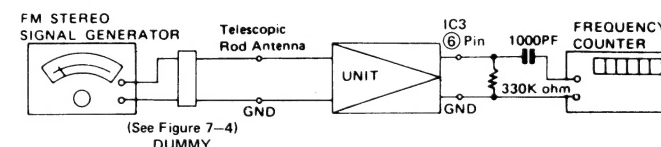


Figure 7-3

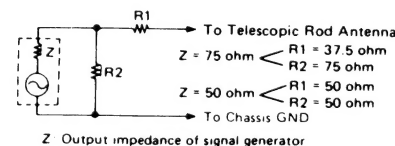
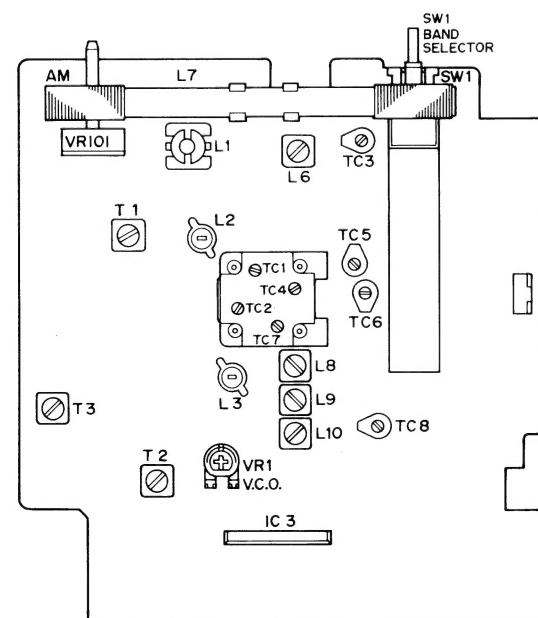


Figure 7-4 FM DUMMY

# ADJUSTMENT POINTS



# DIAL CORD STRINGING

- Turn the drum fully clockwise and stretch its cord over the parts in the numerical order — as shown in Figure 8-1.
- Turn the tuning control shaft fully counterclockwise, and fix it with the pointer aligned with the zero (0) point on the dial scale. See Figure 8-2.

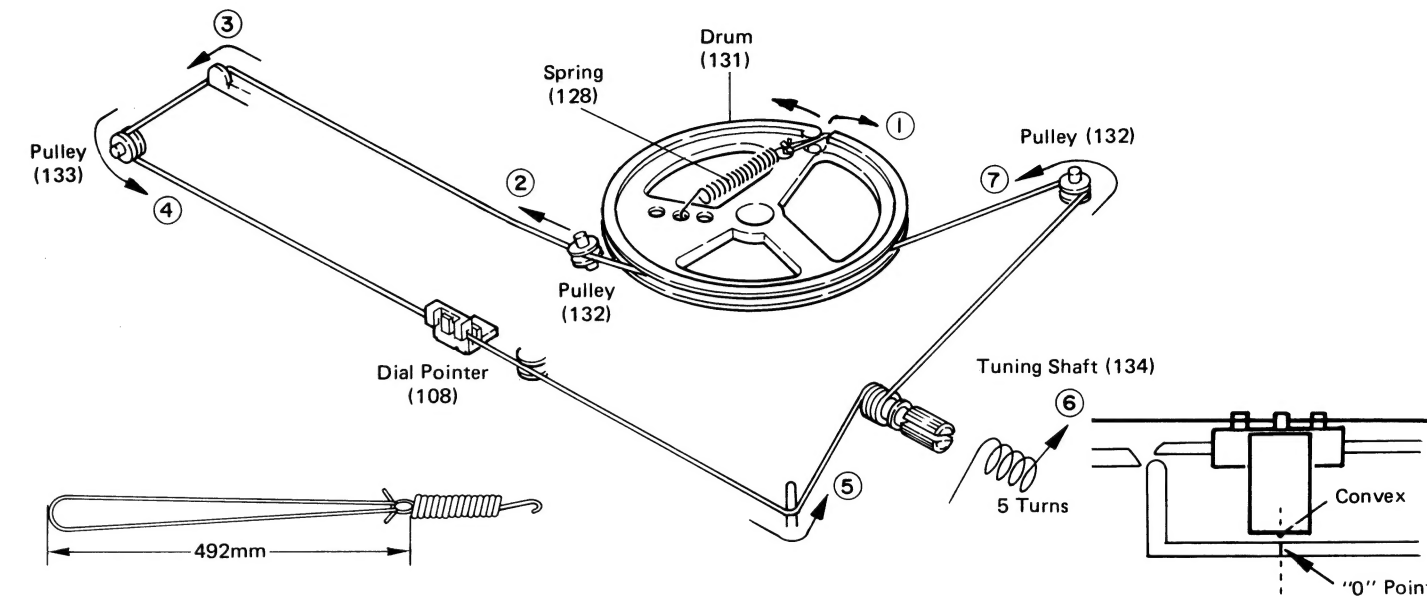


Figure 8-1

Figure 8-2

# IC2 VHIAN7223/-1 (AN7223)

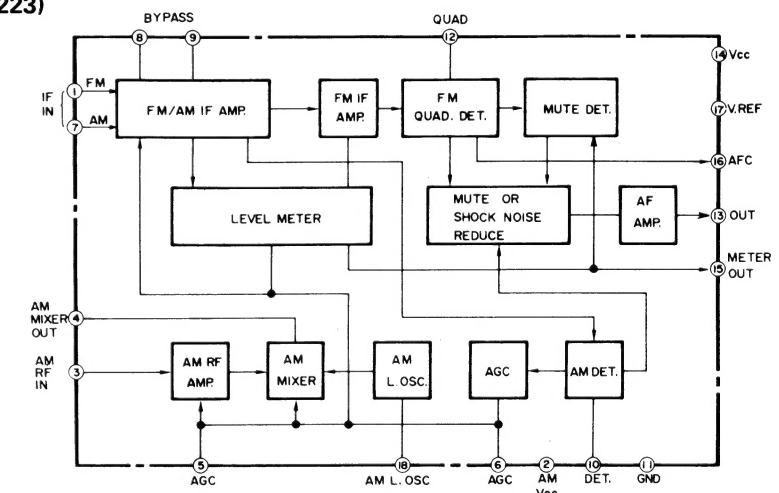
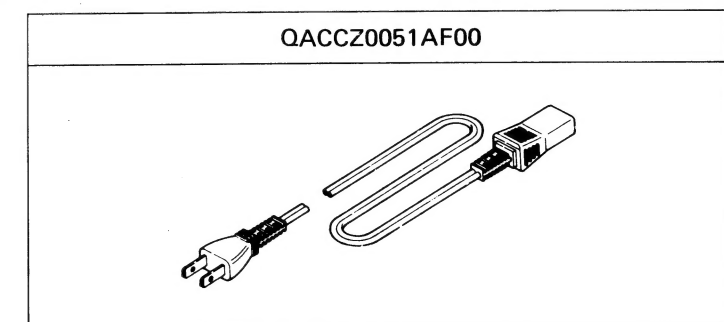


Figure 8-3 BLOCK DIAGRAMS OF INTEGRATED CIRCUIT

# AC POWER SUPPLY CORD





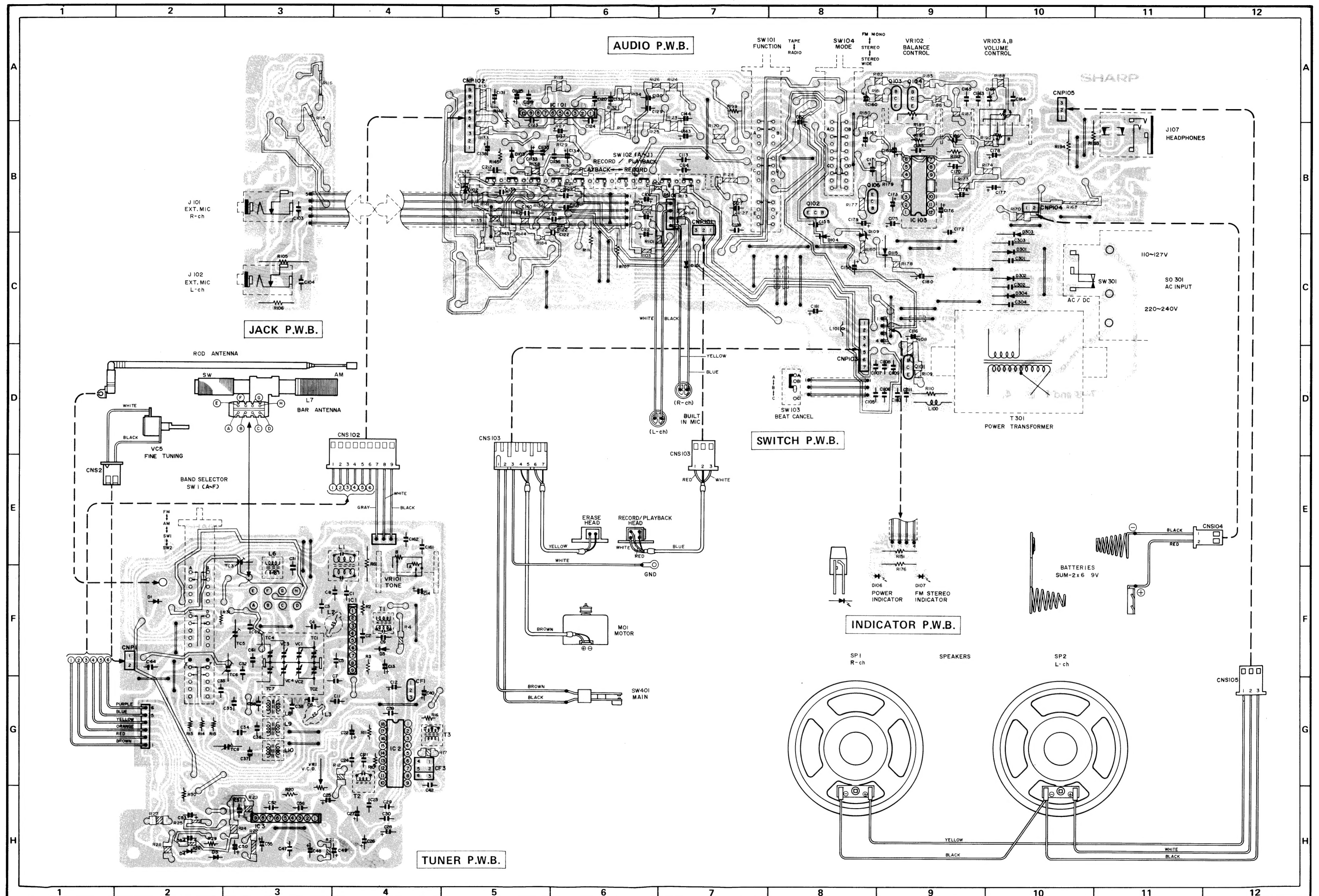


Figure 9 WIRING SIDE OF PRINTED WIRING BOARD



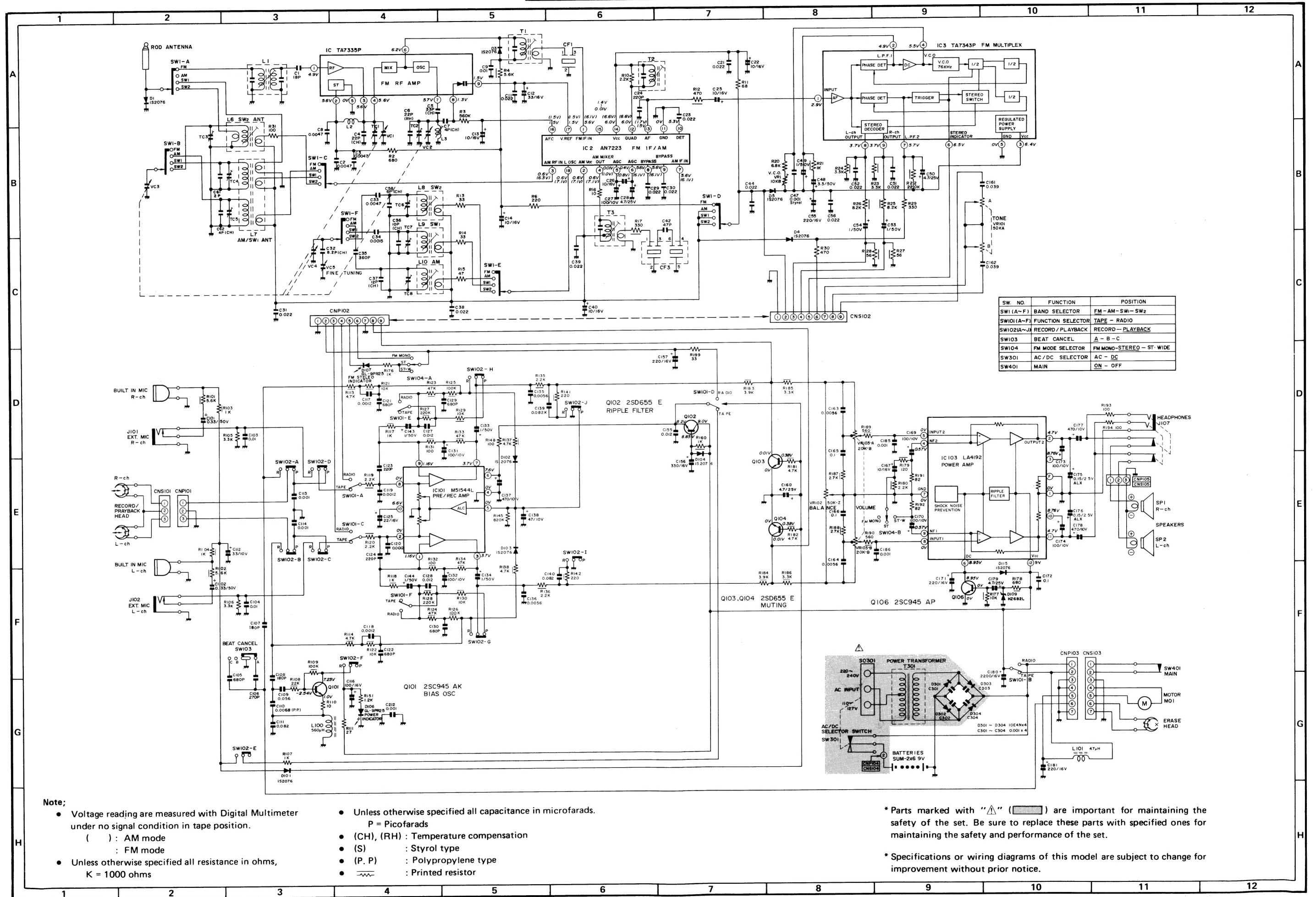


Figure 11 SCHEMATIC DIAGRAM

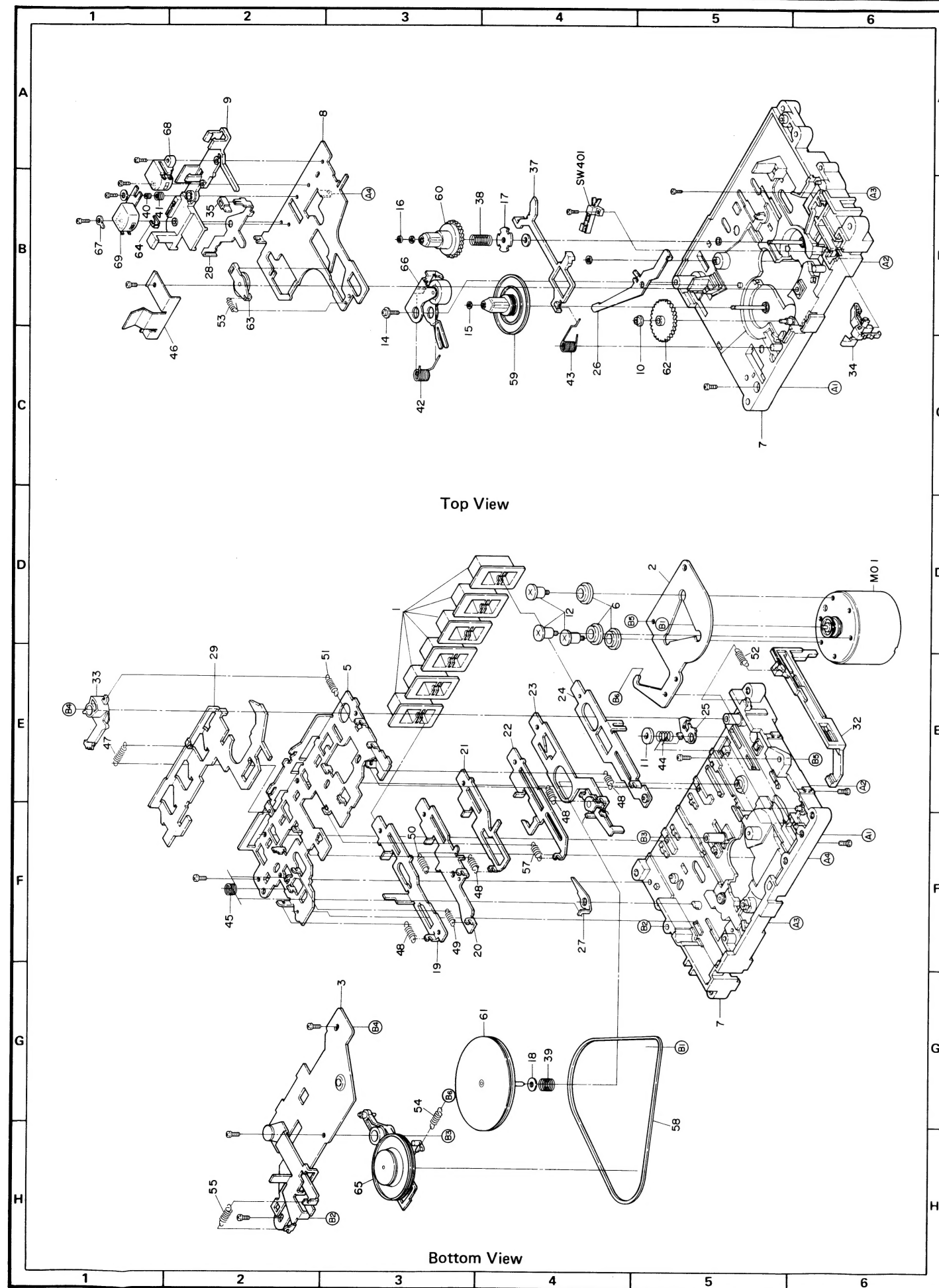


Figure 13 MECHANISM EXPLODED  
-13-

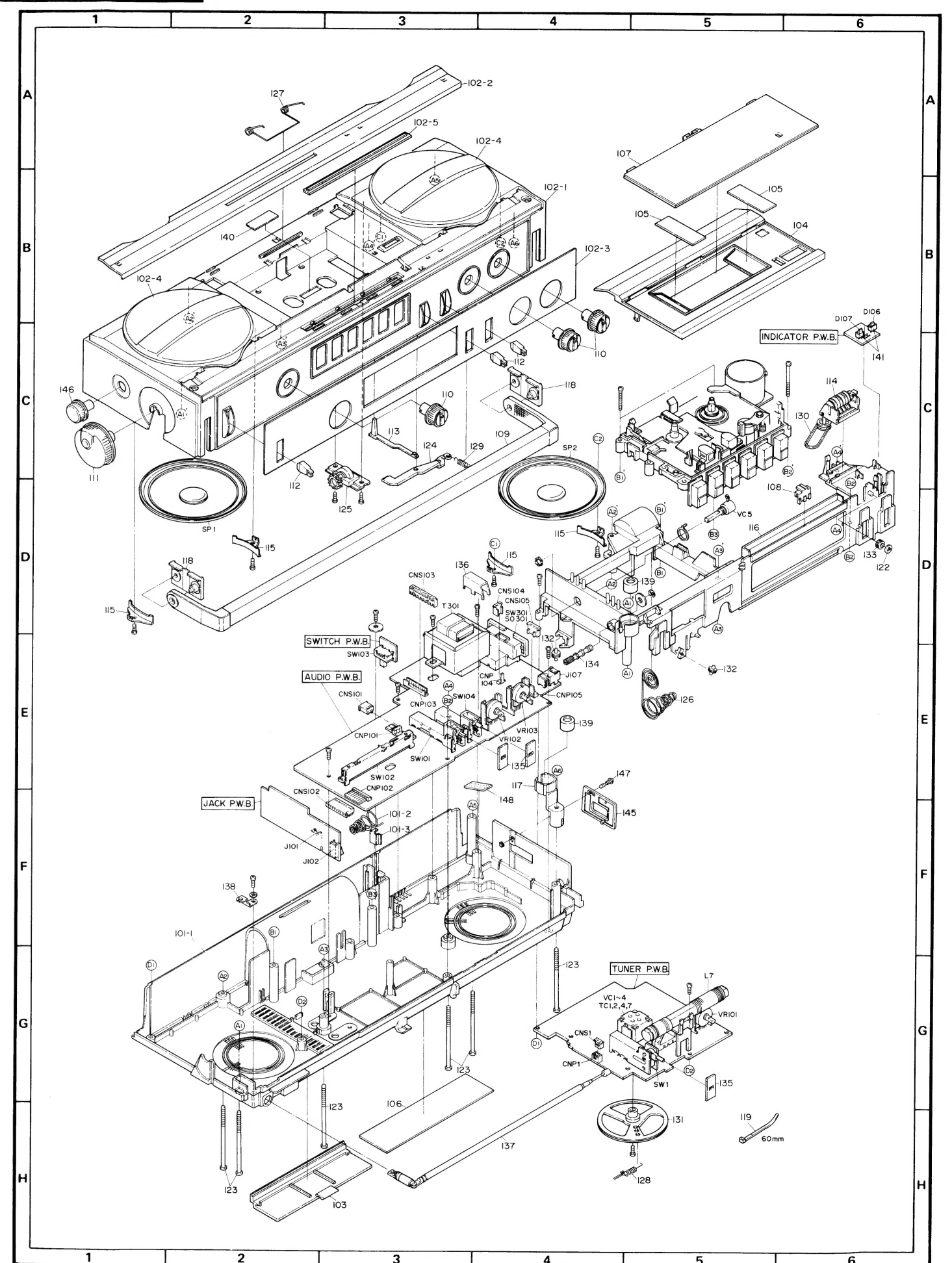


Figure 14 CABINET EXPLODED VIEW  
-14-

## REPLACEMENT PARTS LIST

## "HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

## NOTES:

Parts marked with "△" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

REF.NO.	PART NO	DESCRIPTION	CODE
INTEGRATED CIRCUITS			
IC1	VHITA7335P/-1	FM RF Amp. (TA7335P)	AG
IC2	VHIAN7223/-1	FM IF/AM (Mixer, Oscillator, IF)(AN7223)	AK
IC3	VHITA7343P/-1	FM Multiplex (TA7343P)	AG
IC101	VHIM51544L/-1	Pre Amp. (M51544L)	AG
IC103	VHILA4192/-1	Power Amp. (LA4192)	AK
TRANSISTORS			
Q101	VS2SC945AK/-1	Bias Oscillator (2SC945 AK)	AB
Q102	VS2SD655E/-1	Ripple Filter (2SD655 E)	AC
Q103,104	VS2SD655E/-1	Muting (2SD655 E)	AC
Q106	VS2SC945AP/-1	Noise Prevention (2SC945 AP)	AB
DIODES			
D1	VHD1S2076/-1	Static Protector (1S2076)	AB
D3	VHD1S2076/-1	FM Overload (1S2076)	AB
D4,5	VHD1S2076/-1	Reverse Current Protector (1S2076)	AB
D101	VHD1S2076/-1	Reverse Current Protector (1S2076)	AB
D102	VHD1S2076/-1	ALC Control (1S2076)	AB
D103	VHD1S2076/-1	ALC Control (1S2076)	AB
D104	VHD1S2076/-1	Ripple Filter Circuit (1S2076)	AB
D106	RH-PX1029AFZZ	LED, Power Indicator (GL-9PR25)	AC
D107	RH-PX1029AFZZ	LED, FM Stereo Indicator (GL-9PR25)	AC
D109	VHEHZ6B2L/-1	Zener, 6.2V/400mW (HZ6B2L)	AB
D115	VHD1S2076/-1	Stabilizer for AC Mode (1S2076)	AB
△ D301,302, } △ D303,304 }	VHD10E4N/-1	Power Rectifier (10E4N)	AB
FILTERS			
CF1	RFILF0080AFZZ	Ceramic, 10.7 MHz (FM IF) AD	
CF3	RFILA0074AFZZ	Ceramic, 455 kHz (AM IF) AE	
TRANSFORMERS			
T1	RCILIO157AFZZ	FM IF	AC
T2	RCILIO312AFZZ	FM Detector	AC
T3	RCILIO310AFZZ	AM IF	AC
△ T301	RTRNP0925AFZZ	Power	AQ
COILS			
L1	RCILA0455AFZZ	FM Band Pass Filter	AC
L2	RCILB0672AFZZ	FM RF	AC
L3	RCILB0628AFZZ	FM Oscillator	AC
L6	RCILA0556AFZZ	SW <sub>2</sub> Antenna	AD
L7	RCILA0614AFZZ	Bar Antenna, AM/SW <sub>1</sub>	AH

REF.NO.	PART NO	DESCRIPTION	CODE
L8	RCILB0625AFZZ	SW <sub>2</sub> Oscillator	AC
L9	RCILB0624AFZZ	SW <sub>1</sub> Oscillator	AC
L10	RCILB0623AFZZ	AM Oscillator	AC
L100	VP-CH561K0000	Bias Oscillator, 560μH	AB
L101	VP-CU470K0000	Noise Suppressor, 47μH	AD
CONTROLS			
VC1,2, } VC3,4, } TC1,2, } TC4,7 }	RVC-R0083AFZZ	Variable Capacitors Tuning with Trimmers: TC1; FM RF Trimmer TC2; FM Oscillator Trimmer TC4; SW <sub>1</sub> Antenna Trimmer TC7; SW <sub>1</sub> Oscillator Trimmer	AN
VC5	RVC-Z0056AFZZ	Fine Tuning	AE
TC3	RTO-H1073AFZZ	SW <sub>2</sub> Antenna Trimmer	AC
TC5	RTO-H1073AFZZ	AM Antenna Trimmer	AC
TC6	RTO-H1073AFZZ	SW <sub>2</sub> Oscillator Trimmer	AC
TC8	RTO-H1073AFZZ	AM Oscillator Trimmer	AC
VR1	RVR-M0408AFZZ	V.C.O. Adjust, 10K ohm(B)	AB
VR101	RVR-A0187AFZZ	Tone Control, 50K ohm(A)	AF
VR102	RVR-Z0152AFZZ	Balance Control, 50K ohm(Z)	AD
VR103	RVR-B0269AFZZ	Volume Control, 20K ohm(B)	AG
ELECTROLYTIC CAPACITORS			
(All electrolytic capacitors are ±20% type.)			
C12	RC-EZA336AF1C	33MFD, 16V	AB
C13,14, } C22,25, } C26 }	RC-EZA106AF1C	10MFD, 16V	AB
C27	RC-EZA107AF1A	100MFD, 10V	AB
C28	RC-EZA475AF1E	4.7MFD, 25V	AB
C40	RC-EZA106AF1C	10MFD, 16V	AB
C48	RC-EZA335AF1H	3.3MFD, 50V	AB
C49	RC-EZA105AF1H	1MFD, 50V	AB
C50	RC-EZA475AF1E	4.7MFD, 25V	AB
C53,54	RC-EZA105AF1H	1MFD, 50V	AB
C55	RC-EZA227AF1C	220MFD, 16V	AB
C101,102	RC-EZA334AF1H	0.33MFD, 50V	AB
C112	RC-EZA336AF1A	33MFD, 10V	AB
C116	RC-EZA107AF1C	100MFD, 16V	AB
C125	RC-EZA226AF1C	22MFD, 16V	AG
C131	RC-EZV107AF1A	100MFD, 10V	AB
C132	RC-EZA107AF1A	100MFD, 10V	AB
C133,134	RC-EZA105AF1H	1MFD, 50V	AB
C137	RC-EZV477AF1A	470MFD, 10V	AC
C138	RC-EZA476AF1A	47MFD, 10V	AB
C143,144	RC-EZA105AF1H	1MFD, 50V	AB
C156	RC-EZV337AF1C	330MFD, 16V	AC
C157	RC-EZA227AF1C	220MFD, 16V	AB
C160	RC-EZA475AF1E	4.7MFD, 25V	AB
C167	RC-EZA106AF1C	10MFD, 16V	AB
C169,170	RC-EZA107AF1A	100MFD, 10V	AB
C171	RC-EZA227AF1C	220MFD, 16V	AB
C173,174	RC-EZA107AF1A	100MFD, 10V	AB

REF.NO.	PART NO	DESCRIPTION	CODE
C175,176	RC-AZ1001AFZZ	0.15MFD, 25V	AC
C177,178	RC-EZV477AF1A	470MFD, 10V	AC
C179	RC-EZA475AF1E	4.7MFD, 25V	AB
C180	RC-EZW228AF1C	2200MFD, 16V	AE
C181	RC-EZA227AF1C	220MFD, 16V	AB

## CAPACITORS

(Unless otherwise specified capacitors of Semiconductor type.)

C1	VCCSPA1HL180J	18PF, 50V, ±5%, Ceramic	AA
C2,3	VCTYPA1EX472K	0.0047MFD, 25V, ±10%	AA
C4	VCCCPA1HH220J	22PF(CH), 50V, ±5%, Ceramic	AA
C5	VCCCPA1HH330J	33PF(CH), 50V, ±5%, Ceramic	AA
C6	VCCCPA1HH220J	22PF(RH), 50V, ±5%, Ceramic	AA
C7	VCCCPA1HH4R0C	4PF(CH), 50V, ±0.25PF, Ceramic	AA
C8	VCTYPA1EX472K	0.0047MFD, 25V, ±10%	AA
C9	VCTYPA1EX103M	0.01MFD, 25V, ±20%	AA
C11,21, } C23 }	VCTYPA1EX223M	0.022MFD, 25V, ±20%	AA
C24	VCCSPA1HL221K	220PF, 50V, ±10%, Ceramic	AA
C29,30, } C31 }	VCTYPA1EX223M	0.022MFD, 25V, ±20%	AA
C32	VCCCPA1HH8R2C	8.2PF(CH), 50V, ±0.25PF, Ceramic	AA
C33	VCTYPA1EX472K	0.0047MFD, 25V, ±10%	AA
C34	VCTYPA1EX152K	0.0015MFD, 25V, ±10%	AA
C35	VCCSPA1HL361J	360PF, 50V, ±5%, Ceramic	AA
C36	VCCCPA1HH100D	10PF(CH), 50V, ±0.5PF, Ceramic	AB
C37	VCCCPA1HH120J	12PF(CH), 50V, ±5%, Ceramic	AB
C38,39	VCTYPA1EX223M	0.022MFD, 25V, ±20%	AA
C42	VCCSPA1HL470J	47PF, 50V, ±5%, Ceramic	AA
C44	VCTYPA1EX223M	0.022MFD, 25V, ±20%	AA
C47	VCQSPA1HL102J	0.001MFD, 50V, ±5%, Styrol	AB
C51,52, } C56 }	VCTYPA1EX223M	0.022MFD, 25V, ±20%	AA
C58	VCCCPV1HH6R0C	6PF(CH), 50V, ±0.25PF, Ceramic	AA
C61	VCCSPA1HL2R0C	2PF, 50V, ±0.25PF, Ceramic	AA
C62	VCCCPA1HH4R0C	4PF(CH), 50V, ±0.25PF, Ceramic	AA
C103,104	VCTYPA1EX103J	0.01MFD, 25V, ±5%	AA
C105	VCKYPA1HB681K	680PF, 50V, ±10%, Ceramic	AA
C106	VCKYPA1HB271K	270PF, 50V, ±10%, Ceramic	AA
C107,108	VCCSPU1HL181J	180PF, 50V, ±5%, Ceramic	AA
C109	VCTYPA1EX563K	0.056MFD, 25V, ±10%	AB
C110	VCQPKA2AA682J	0.0068MFD, 100V, ±5%, Polypropylene	AB
C111	VCTYPA1EX823K	0.082MFD, 25V, ±10%	AB
C113,114	VCTYPA1EX102K	0.001MFD, 25V, ±10%	AA
C117,118, } C119,120 }	VCTYPA1EX122K	0.0012MFD, 25V, ±10%	AB

REF.NO.	PART NO	DESCRIPTION	CODE
C121,122	VCKYPA1HB681K	680PF, 50V, ±10%, Ceramic	AA
C123,124	VCCSPA1HL221J	220PF, 50V, ±5%, Ceramic	AA
C127,128	VCTYPA1EX123K	0.012MFD, 25V, ±10%	AA
C129,130	VCKYPA1HB681K	680PF, 50V, ±10%, Ceramic	AA

C135,136	VCTYPA1EX562K	0.0056MFD, 25V, ±10%	AA
C139,140	VCTYPA1EX823K	0.082MFD, 25V, ±10%	AB
C155	VCTYPA1EX123K	0.012MFD, 25V, ±10%	AA
C161,162	VCTYPA1EX393K	0.039MFD, 25V, ±10%	AA
C163,164	VCTYPA1EX562K	0.0056MFD, 25V, ±10%	AA
C165,166, } C172 }	VCTYPA1EX104K	0.1MFD, 25V, ±10%	AB
C185,186, } C212 }	VCTYPA1EX102K	0.001MFD, 25V, ±10%	AA
C301,302, } C303,304 }	VCKYAT1HB102K	0.001MFD, 50V, ±10%, Ceramic	AA

## RESISTORS

(All resistors are 1/4W, ±5%, Carbon type.)

R2	VRD-SU2EE681J	680 ohm	AA
R3	VRD-SU2EE564J	560K ohm	AA
R6	VRD-ST2EE221J	220 ohm	AA
R10	VRD-SU2EE222J	2.2K ohm	AA
R11	VRD-SU2EE680J	68 ohm	AA
R13,14	VRD-SU2EE330J	33 ohm	AA
R15	VRD-SU2EE470J	47 ohm	AA
R16	VRD-SU2EE100J	10 ohm	AA
R20	VRD-SU2EE682J	6.8K ohm	AA
R29	VRD-SU2EE331J	330 ohm	AA
R30	VRD-SU2EE471J	470 ohm	AA
R31	VRD-SU2EE101J	100 ohm	AA
R105,106	VRD-ST2EE332J	3.3K ohm	AA
R107	VRD-ST2EE102J	1K ohm	AA
R110	VRD-ST2EE100J	10 ohm	AA
R111	VRD-ST2EE270J	27 ohm	AA
R145	VRD-SU2EE824J	820K ohm	AA
R148	VRD-SU2EE101J	100 ohm	AA
R151	VRD-ST2EE122J	1.2K ohm	AA
R176	VRD-ST2EE102J	1K ohm	AA
R191,192	VRD-SU2EE820J	82 ohm	AA
R193,194	VRD-ST2EE101J	100 ohm	AA
R199	VRD-SU2EE330J	33 ohm	AA

## OTHER CIRCUITRY PARTS

CNP1	QCNCM462BAFZZ	Plug, 2-Pin	AA
CNP101	QCNCM284CAFZZ	Plug, 3-Pin	AF
CNP102	QCNCM329JAFZZ	Plug, 9-Pin	AE
CNP103	QCNCM403GAFZZ	Plug, 7-Pin	AB
CNP104	QCNCM095BAFZZ	Plug, 2-Pin	AB
CNP105	QCNCM136CAFZZ	Plug, 3-Pin	AB
CNS1	CCNCW334BAF05	Socket, 2-Pin with Wire Leads	AB
CNS101	QCNCW-1781AFZZ	Socket, 3-Pin with Wire Leads	AE
CNS102	QCNCW-1881AFZZ	Socket, 9-Pin with Wire Leads	AH
CNS103	QCNCW-1782AFZZ	Socket, 7-Pin with Wire Leads	AH
CNS104	QCNCW-1880AFZZ	Socket, 2-Pin with Wire Leads	AC
CNS105	QCNCW-1879AFZZ	Socket, 3-Pin with Wire Leads	AF
BI101	QCNCW-1882AFZZ	Board in Plug, 4-Pin with Wire Leads Built-in Microphone	AB



## QT-12ZS

## QT-12ZS

REF.NO.	PART NO	DESCRIPTION	CODE	REF.NO.	PART NO	DESCRIPTION	CODE	REF.NO.	PART NO	DESCRIPTION	CODE	REF.NO.	PART NO	DESCRIPTION	CODE
J101,102	QJAKE0108AFZZ	External Microphone Jack	AC	47	MSPRT0976AFFJ	Spring, Lock Plate	AA	102-2	HDALM0405AFSB	Dial Scale (QT-12ZY)	AN	126	MSPRC0391AFFW	Spring, Battery Terminal	AB
J107	QJAKJ0114AFZZ	Headphones Jack	AG	48	MSPRT0977AFFJ	Spring, Operation Lever	AA	102-3	HINDM1570AFSA	Ornamental Metal, Upper	AM	127	MSPRD0501AFFJ	Spring, Cassette Holder Up	AB
MO1	RMOTV0133AF02	Motor, with Pulley	AW	49	MSPRT0978AFFJ	Spring, Playback Lever	AA	102-4	HPNC-0177AFSB	Punching Metal	AH	128	MSPRT0750AFFW	Spring, Dial Stringing	AA
△ SO301	QSOCE0595AFZZ	Socket, AC/DC Power Supply(with AC/DC Selector Switch)	AG	50	MSPRT0979AFFJ	Spring, Over Stroke	AA	102-5	HPNLD1277AFSA	Window, Dial Scale	AB	129	MSPRT1001AFFJ	Spring, Cassette Holder Lock	AA
SP1,2	VSP0090P-10SA	Speakers	AP	51	MSPRT0980AFFJ	Spring, Lock Release Lever	AA	102	GCAB-1178AFSD	Cabinet, Front Assembly (QT-12ZB)	BD	130	NBLTK0217AFZZ	Belt, Tape Counter Drive	AB
SW1-A~F	QSW-B0176AFZZ	Switch, Band Selector	AM	52	MSPRT0981AFFJ	Spring, Cassette Holder Lever	AA	△ 102-1	GCABA1749AFSD	Cabinet, Front (QT-12ZB)	AX	131	NDRM-0185AFZZ	Drum, Dial Stringing	AC
SW101-A~F	QSW-B0174AFZZ	Switch, Function Selector	AG	53	MSPRT0982AFFJ	Spring, Playback Idler	AA	102-2	HDALM0405AFSC	Dial Scale (QT-12ZB)	AN	132	NPLYB0050AFZZ	Pulley, Dial Stringing	AA
SW102-A~J	QSW-S0386AFZZ	Switch, Record/Playback	AG	54	MSPRT0983AFFJ	Spring, Fast Forward/Rewind Roller	AA	102-3	HINDM1570AFSA	Ornamental Metal, Upper	AM	133	NPLYB0052AFZZ	Pulley, Dial Stringing	AA
SW103	QSW-S0267AFZZ	Switch, Beat Cancel	AD	55	MSPRT0984AFFJ	Spring, Record Lever	AA	102-4	HPNC-0177AFSA	Punching Metal (QT-12ZB)(QT-12ZS)	AH	134	NSFTD0198AFFW	Shaft, Tuning	AC
SW104	QSW-B0177AFZZ	Switch, Mode Selector	AF	57	MSPRT1002AFFJ	Spring, Fast Forward Lever	AA	102-5	HPNLD1277AFSA	Window, Dial Scale	AB	135	PFLT-0585AF00	Cushion, Lever Knob	AA
SW301	Not Available	Switch, Socket, AC/DC Power Supply Part of SO301	—	58	NBLTK0248AFZZ	Belt, Flywheel Drive	AC	103	GFTAB1142AFSA	Lid, Battery Compartment (QT-12ZS)(QT-12ZY)	AC	136	PRDAR0284AFZZ	Heat Sink	AA
SW401	QSW-F0182AFZZ	Switch, Main	AC	59	NDAIR0175AFSA	Turntable, Take-up	AF	103	GFTAB1142AFSB	Lid, Battery Compartment (QT-12ZR)	AC	137	QANTR0112AFZZ	Rod Antenna	AN
MECHANICAL PARTS				60	NDAIR0176AFSA	Turntable, Supply	AB	103	GFTAB1142AFSC	Lid, Battery Compartment (QT-12ZB)	AC	138	QTANZ0171AFFW	Terminal, Rod Antenna	AA
1	JKNBR0220AFSA	Button, Operation	AC	61	NFLYC0110AFZZ	Flywheel	AG	104	GFTAC1279AFSA	Cassette Holder (QT-12ZS)	AL	139	RMICCO087AFZZ	Built-in Microphone	AE
2	LANGF0766AFFW	Bracket, Motor	AC	62	NGERHO117AFZZ	Gear, Fast Forward	AB	104	GFTAC1279AFSB	Cassette Holder (QT-12ZR)	AL	140	TLABZ0241AFZZ	Mirror Plate	AA
3	LANGF0817AFZZ	Flywheel Bracket Assembly	AF	63	NIDR-0084AFZZ	Idler, Playback	AE	104	GFTAC1279AFSC	Cassette Holder (QT-12ZY)	AL	141	PSPAS0149AFZZ	Spacer, LED	AA
5	LANGG0109AFZZ	Bracket, Operation Lever	AE	64	PSPAD0050AFFW	Spacer, Head	AA	104	GFTAC1279AFSD	Cassette Holder (QT-12ZB)	AL	145	GCOVH1187AFSC	Cover, AC Power Supply Socket (QT-12ZS) (QT-12ZY)	AC
6	LBSHZ0086AFZZ	Cushion, Motor	AA	65	NROLW0024AFZZ	Roller, Fast Forward/Rewind Assembly	AE	105	HDECP0091AFSA	Ornamental Metal, Cassette Holder	AA	145	GCOVH1187AFSD	Cover, AC Power Supply Socket (QT-12ZR)	AC
7	LCHSM0427AFZZ	Main Chassis	—	66	NROLY0055AFZZ	Pinch Roller	AE	106	HINDP0659AFSA	Plate, Specifications (QT-12ZS)	AC	146	JKNBN0533AFSA	Fine Tuning	AF
8	LCHSS0185AFFW	Sub-chassis	—	67	QHWS-2222AGFN	Lug	AA	△ 106	HINDP0663AFSA	Plate, Specifications (QT-12ZR)	AC	147	LX-BZ0345AFF	Screw, AC Power Supply Socket Cover Retaining	AA
9	LDAIH0061AFZZ	Head Base	AB	68	RHEDA0094AFZZ	Head, Erase	AF	△ 106	HINDP0664AFSA	Plate, Specifications (QT-12ZB)	AC	148	PSPAS0254AFZZ	Spacer	△
10	LRTNP0053AFZZ	Retaining Ring, Fast Forward Gear	AA	69	RHEDH0104AFZZ	Head, Record/Playback	AN	△ 106	HINDP0665AFSA	Plate, Specifications (QT-12ZY)	AC	△	QACCL0050AF00	Cord, AC Power Supply For Australia	AM
11	LRTNP0054AFZZ	Retaining Ring, Pause Lock Lever	AA	MISCELLANEOUS				△ 106	HINDP0666AFSA	Plate, Specifications (QT-12ZB)	AC	△	QACCZ0051AF00	Cord, AC Power Supply For EX	AH
12	LX-BZ0451AFFD	Screw, Motor Retaining	AA	101	CCABB1749AF01	Cabinet, Rear Assembly (QT-12ZS)(QT-12ZY)	AT	107	HPNLZ1059AFSA	Transparent Plate, Cassette Holder (QT-12ZS)(QT-12ZB)	AK		QPLGA0251AFZZ	Plug, Adaptor	AE
14	LX-HZ0056AFFD	Screw, Pinch Roller	AA	△ 101-1	GCABB1749AFSA	Cabinet, Rear (QT-12ZS) (QT-12ZY)	AM	107	HPNLZ1059AFSB	Transparent Plate, Cassette Holder (QT-12ZR)(QT-12ZY)	AK		SPAKA1017AFZZ	Packing Add, Right Side	AC
15	LX-WZ9064AFZZ	Washer, 1.5mm Dia. x4mm Dia.x0.5mm	AA	101-2	MSPRC0390AFFW	Spring, Battery Terminal (-)	AB	107	HPNLZ1059AFSD	Transparent Plate, Cassette Holder (QT-12ZB)	AK		SPAKA1018AFZZ	Packing Add, Left Side	AC
16	LX-WZ1070AFZZ	Washer, 1.5mm Dia. x 0.25mm	AA	101-3	QTANB9130AFFW	Battery Terminal (+)	AB	108	HSSND0322AFSA	Pointer	AC		SPAKC2366AFZZ	Packing Case (QT-12ZS)	AG
17	LX-WZ9083AFZZ	Washer, Back Tension	AA	CNS104	QCNW-1880AFZZ	Socket, 2-Pin with Wire Leads	AC	109	JHNDP1056AFSA	Handle (QT-12ZS)	AK		SPAKC2386AFZZ	Packing Case (QT-12ZR)	AG
18	LX-WZ9084AFZZ	Washer, Flywheel	AA	101	CCABB1749AF03	Cabinet, Rear Assembly (QT-12ZR)	AU	109	JHNDP1056AFSC	Handle (QT-12ZY)	AK		SPAKC2387AFZZ	Packing Case (QT-12ZY)	AG
19	MLEVF1456AFFW	Lever, Record	AB	△ 101-1	GCABB1749AFSB	Cabinet, Rear (QT-12ZR)	AP	109	JHNDP1056AFSD	Handle (QT-12ZB)	AK		SPAKC2388AFZZ	Packing Case (QT-12ZB)	AG
20	MLEVF1457AFFW	Lever, Playback	AB	101-2	MSPRC0390AFFW	Spring, Battery Terminal (-)	AB	110	JKNBK0296AFSB	Knob, Volume/Tone/ Balance Control	AD		SSAKA0021AFZZ	Bag, Operation Manual	AA
21	MLEVF1458AFFW	Lever, Rewind	AB	101-3	QTANB9130AFFW	Battery Terminal (+)	AB	111	JKNBN0544AFSA	Knob, Tuning	AF		SSAKH0101AFZZ	Polyethylene Bag Unit	AA
22	MLEVF1459AFFW	Lever, Fast Forward	AB	CNS104	QCNW-1880AFZZ	Socket, 2-Pin with Wire Leads	AC	112	JKNBP0215AFSB	Knob, Lever	AD		TCAUA0178AFZZ	Caution Label, Arabic Power Supply Cord	AA
23	MLEVF1460AFZZ	Lever Assembly, Stop/Eject	AD	101	CCABB1749AF05	Cabinet, Rear Assembly (QT-12ZB)	AU	113	JKNBZ0303AFSA	Button, Tape Counter Reset	AB		TGANE1121AFZZ	Warranty Card For EX	AC
24	MLEVF1462AFZZ	Lever, Pause	AC	△ 101-1	GCABB1749AFSC	Cabinet, Rear (QT-12ZB)	AP	114	KCOUB0143AFZZ	Tape Counter	AK		TGANE1124AFZZ	Warranty Card For Australia	AC
25	MLEVF1465AFFW	Lever, Pause Lock	AA	101-2	MSPRC0390AFFW	Spring, Battery Terminal (-)	AB	115	LANGK0282AFZZ	Bracket, Speaker Retaining	AA		TINSZ0460AFZZ	Operation Manual	AH
26	MLEVF1466AFFW	Lever, Playback Idler Release	AB	101-3	QTANB9130AFFW	Battery Terminal (+)	AB	116	LHLDF1289AFZZ	Frame, Main	AF		TLABZ0118AFZZ	Label, Indication: Free of Tax	AB
27	MLEVF1467AFFW	Lever, Record Prevention	AA	CNS104	QCNW-1880AFZZ	Socket, 2-Pin with Wire Leads	AC	117	LHLDF1291AFZZ	Frame, Built-in Microphone	AC		TLABZ0135AFZZ	Label, Arabic	AA
28	MLEVF1468AFFW	Lever, Sensor	AB	102	GCAB-1178AFSA	Cabinet, Front Assembly (QT-12ZS)	BC	118	LHLDL1051AFZZ	Holder, Handle	AB		TLABZ0308AFZZ	Label, EP, For PX (QT-12ZS)(QT-12ZB) (QT-12ZY)	AA
29	MLEVF1469AFFW	Lever, Lock	AD	△ 102-1	GCABA1749AFSA	Cabinet, Front (QT-12ZS)	AW	119	LHLDW1075AFZZ	Nylon Band, 60mm	AA		TLABZ0181AFZZ	Label, EP, For PX (QT-12ZR)	AA
32	MLEVP0430AFZZ	Lever, Cassette Holder Eject	AB	102-2	HDALM0405AFSA	Dial Scale (QT-12ZS)	AN	122	LSTWC2403AFZZ	Stop Ring	AA		TLABZ0383AFZZ	Label, Special Feature	AD
33	MLEVP0431AFZZ	Lever, Lock Release	AB	102-3	HINDM1570AFSA	Ornamental Metal, Upper	AM	123	LX-CZ0024AFZZ	Screw, 60mm (QT-12ZS) (QT-12ZY)(QT-12ZB)	AA		TLSTS0001ZZR0	List, Service Station Australia	—
34	MLEVP0432AFZZ	Lever, Erase Prevention	AA	102-4	HPNC-0177AFSA	Punching Metal (QT-12ZS)(QT-12ZB)	AH	123	LX-CZ0024AF00	Screw, 60mm Black (QT-12ZR)	AA		UBATU0010AGZZ	Battery, SUM-2	AC
35	MLEVP0433AFZZ	Chip, Sensor	AA	102-5	HPNLD1227AFSA	Window, Dial Scale	AB	124	MLEVP0441AFZZ	Lever, Cassette Holder Lock	AB		P.W.B. ASSEMBLY (Not Replacement Item)		
37	MLEVP0435AFZZ	Lever, Brake	AA	102	GCAB-1178AFSB	Cabinet, Front Assembly (QT-12ZR)	BD	125	MLIFP0017AFZZ	Damper, Cassette Holder	AD		DUNTR0205AF03	Tuner Circuit	—
38	MSPRC0378AFFJ	Spring, Back Tension	AA	△ 102-1	GCABA1749AFSB	Cabinet, Front (QT-12ZR)	AX						DKEND0349AF01	Audio Circuit	—
39	MSPRC0379AFFJ	Spring, Flywheel	AA	102-2	HDALM0405AFSB	Dial Scale (QT-12ZR)	AN						(Combined Assembly)		
40	MSPRC0380AFFJ	Spring, Head Azimuth Adjust (Inside)	AA	102-3	HINDM1570AFSA	Ornamental Metal, Upper	AM								
41	MSPRC0381AFFJ	Spring, Head Azimuth Adjust (Outside)	AA	102-4	HPNC-0177AFSB	Punching Metal (QT-12ZR)(QT-12ZY)	AH								
42	MSPRD0488AFFJ	Spring, Pinch Roller	AA	102-5	HPNLD1227AFSA	Window, Dial Scale	AB								
43	MSPRD0489AFFJ	Spring, Brake	AA	102	GCAB-1178AFSC	Cabinet, Front Assembly (QT-12ZY)	BD								
44	MSPRD0490AFFJ	Spring, Pause Lock Lever	AA	△ 102-1	GCABA1749AFSC	Cabinet, Front (QT-12ZY)	AX								
45	MSPRD0491AFFJ	Spring, Record Prevention Lever	AA												
46	MSPRP0349AFFJ	Spring, Cassette Hold Down	AA												